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EXAMINER	
CHANG, RICHARD	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/935,514	MCKINNON ET AL.	
	Examiner	Art Unit	
	Richard Chang	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34 and 44-51* is/are rejected.

7)☒ Claim(s) *35-43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Argument

1. Applicant's arguments and amendments, filed on 04/04/2006, with respect to claims 1-51 have been fully considered but they are not deemed to be persuasive.

-- In response to applicant's argument that the cited reference, US patent No. 6,477,144 B1 ("Morris et al."), does not disclose "determining priority associated with bandwidth assignment" (See Applicant ' Amendment, page 14, 2nd paragraph), the reference clearly discloses that determining priority associated with bandwidth assignment (See Fig. 9, Col. 5, lines 15-23), i.e., the queue operation corresponds to scheduling an event with priority. Thus, it is the examiner's position that the limitation of "determining priority associated with bandwidth assignment" is clearly anticipated by the cited reference for the reason discussed above.

-- In response to applicant's argument that the cited reference, US patent No. 6,477,144 B1 ("Morris et al."), does not disclose "allocating network access for the second time interval for at least one user differing from that user's allocated network access for the first time interval" (See Applicant ' Amendment, page 15, 1st paragraph), the reference clearly discloses that allocating network access for the second time interval for at least one user differing from that user's allocated network access for the first time interval (See Fig. 4, Col. 1, line 65 - Col. 2, line 19), i.e., allocating bandwidth (Class A = 40%, Class B=60%) during the period after second time interval (period T0+dT to T0+2dt) such that different user receives network access only by different user's allowance and different class receives collective network access only by different

class' allowance, wherein the scheduler scans (monitors) all the traffic classes in every time interval using the priority base scheme at the same time (See Fig. 6, Col. 3, lines 58-63). Thus, it is the examiner's position that the limitation of "allocating network access for the second time interval for at least one user differing from that user's allocated network access for the first time interval" is clearly anticipated by the cited reference for the reason discussed above.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-16, 19-21, 26-28, 30, 32-33, 47 and 49-50 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US patent No. 6,477,144 B1 ("Morris et al.").

Regarding Claim 1, Morris et al. teach a method and apparatus for time-linked queue management for data traffic with a plurality classes (class A and class B, see Fig. 1) across a multimedia (ATM) networks wherein each class may carry one connection (user# a1 and user# a3 for class A, see Fig. 2) or a plurality connections (user# b1 and user# b2 for class B, see Fig. 2) and there is a queue for each class (See Fig. 2) grouped with different connections (user# a1, a3, b1, b2), with at least a first connection

(user#1) being grouped within a first class (class A, See Fig. 2) and at least a second connection (user#3) being grouped within a second class (See Fig. 2 as class B) (See Fig. 2, Col. 1, lines 44-50), comprising the steps of:

(a) determining priority based on bandwidth allocation (for class and user assignment) for a first time interval (period dT between T0 to T0+dt, where dT as Tupdate, see Fig. 6, Col. 3, line 58 - Col. 4, line 5) by allocating network access to each user class (class a, b) for a first future time interval (period dT between T0+dt to T0+2dt) and, for each user class (a, b), allocating network access to each user within the class for the first time interval (period dT between T0 to T0+dt) (See Fig. 3, Col. 1, lines 50-61),

(b) allocating bandwidth allocation (Class A = 60%, Class B=40%) during the first time interval (period dT between T0 to T0+dt) such that no link (user) receives more network access than that user's allowance and no class receives more collective network access than that class' network allowance (See Fig. 3, Col. 1, lines 50-61),

(c) determining priority associated with bandwidth assignment (for class and user allowances of network access) for second time interval (period dT between T0+dT to T0+2dt) by allocating network access to each user class for second future time interval (period dT between T0+2dT to T0+3dt) succeeding the period before first time interval (period dT between T0 to T0+dt) and, for each user class, allocating network access to each link (user pair) for the second time interval (period dT between T0+dT to T0+2dt), the allocated network access for the second time interval for at least one link (user pair)

differing from that user's allocated network access for the first time interval (period dT between T0+dT to T0+2dt), and

(d) allocating bandwidth (Class A = 40%, Class B=60%) during the period after second time interval (period T0+dT to T0+2dt) such that different user receives network access only by different user's allowance and different class receives collective network access only by different class' allowance (See Fig. 4, Col. 1, line 65 - Col. 2, line 19), wherein the scheduler scans (monitors) all the traffic classes in every time interval using the priority base scheme at the same time (See Fig. 6, Col. 3, lines 58-63)

Regarding claims 2-4, Morris et al. further teach an example that for class a,b,c,d, the allocated network access for first time interval (period dT between T0 to T0+dt) differs from the allocated network access for the second time interval (period T0+dT to T0+2dt) for that connection (see Fig. 4).

Regarding claim 5, Morris et al. further teach that requesting a minimum level of network access for a user for utilization during the first future time interval (period dT between T0 to T0+dt), and wherein said allocating network access to such user for the first future time interval comprises setting the level of network access allocated to such user to an amount equal to or greater than the requested minimum level in the scheduling table 64 (based on per link per class in the scheduling table 64) (See Fig. 6, Col. 3, line 58 – Col. 4, line 17).

Regarding claim 6, Morris et al. further teach that allocating network access to such user for the second future time interval (period dT between T0+dt to T0+2dt) comprises setting the level of network access allocated to such user to an amount less

than the requested minimum level for the first time interval (based on per link per class in the scheduling table 64) (See Fig. 6, Col. 3, line 58 – Col. 4, line 17).

Regarding claim 7, the first future time interval and the second future time interval has a period of between one minute and sixty minutes (maximum value of Tupdate is determined by the rate [inversely proportional] of scheduling to be supported by the scheduler) (see Col. 7, lines 26-29).

Regarding claim 8, Morris et al. further teach that network access comprises bandwidth across the shared communications medium for consumption by each user in conveying data of the user (data transmission over ATM network) (see 1 Col. 1, lines 15-17).

Regarding claim 19, Morris et al. further teach prioritizing the user classes for allocating network access (see Fig. 1, Col. 1, lines 18-23).

Regarding claim 20, Morris et al. further teach prioritizing the users for allocating network access (see Fig. 1, Col. 1, lines 26-29).

Regarding claim 21, Morris et al. further teach that prioritizing of the user classes is based on fairness considerations (round-robin prioritizing of the user classes) (see Col. 4, lines 32-36).

Regarding claims 27 and 44, Morris et al. further teach that step of prioritizing is based on class service level agreements (prioritizing policies) for at least two user classes regarding the provision of network access to each respective class (such as guaranteed minimum rate per class) (see Col. 1, lines 58-60).

Regarding claims 30 ad 47, Morris et al. further teach that each CSLA (policy) specifies a respective time-of-day (TOD) minimum level of collective network access for the respective users therein, and said step of prioritizing includes comparing said monitored network access usages for such user classes during the specified respective TOD with the specified respective TOD minimum levels of collective network access, and awarding priority to a user class when said monitored network access usage during the specified respective TOD for such user class falls below the specified respective TOD minimum level of collective network access of such user class (scheduling events on a particular day) (see Col. 7, lines 40-46).

Regarding claims 9-10, 28 and 45, Morris et al. further teach that all link and all the traffic classes (collective network access usage of each class) are scanned (monitoring) in every cell interval (see Fig. 6, Col. 5, lines 23-37).

Regarding claims 11-12, Morris et al. further teach the step of monitoring network access usage by each user and user class includes collecting data representative of logical data units transmitted from and to each user during a past time interval (Csize counter) (see Fig. 9, Col. 6, lines 41-44).

Regarding claims 13-14, Morris et al. further teach the step of monitoring network access usage includes collecting data representative of the number of logical data units of the user and user class that are dropped during a past time interval (meeting delay and loss guarantees) (see Col. 6, lines 41-44 and Col. 2 and lines 20-25).

Regarding claims 15-16, Morris et al. further teach the step of monitoring network access usage includes collecting data representative of the number of logical data units

of the user and user class that are requested to be transmitted in an upstream direction during a past time interval (outgoing cell stream) (see Col. 9, lines 2-14).

Regarding claim 26, Morris et al. further teach that user classes are prioritized based on an established minimum quality of service (QoS) standard (such as minimum loss and delay is guaranteed (see Col. 1, lines 42-44).

Regarding claims 29, 31, 34, 46, 48 and 51, Morris et al. further teach that the priority of traffic classes are based on the limitation to a predetermined bound (based on predetermined threshold on maximum level or minimum level) (see Col. 1, lines 33-36).

Regarding claims 32-33 and 49-50, Morris et al. further teach that the priority of traffic classes are based on the strict policy (thus may be based on credit level or fee level) (see Col. 1, lines 30-33).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 17-18, 22-25, 29, 31, 34, 46, 48 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,477,144 B1 ("Morris et al.") in view of US patent 6,028,860 ("Laubach et al.").

Regarding Claim 17, as discussed above, Morris et al. teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

"the shared communications medium is part of a Cable Network and the shared communications medium comprises a coaxial cable".

Laubach et al. teach a system and method for prioritized packet to ATM cell bi-directional transmission over a cable network (See Fig. 1, Col. 5, lines 12-18).

A person of ordinary skill in the art would have been motivated to employ Laubach et al. in Morris et al. in order to obtain a method and apparatus for time-linked queue management for data traffic with a plurality classes and to take advantage of the ATM cell transmission over a cable network in claim 17.

The suggestion/motivation to do so would have been to transmit the ATM cell over a cable network, as suggested by Laubach et al. in Col. 5, lines 12-18. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Laubach et al. with the Morris et al. to obtain the inventions specified in claim 17.

Regarding claim 18, as discussed above, Morris et al. teach an ATM multimedia network, thus may cover transmission media from cable, optical fiber, and wireless links (see 1 Col. 1, lines 15-17).

6. Claims 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,477,144 B1 ("Morris et al.") in view of IBM Technical Disclosure Bulletin NB 9203470 ("IBM_NB9203470").

Regarding Claim 22, as discussed above, Morris et al. teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

"the user classes are prioritized based on collective user throughput during a past time interval, with a user class with lesser collective user throughput receiving priority over a user class with greater collective user throughput".

IBM_NB9203470 teach a system and method for access based on access throughput-fairness control with a class-dependent threshold to guarantees tight access-delay bounds for all priorities.

A person of ordinary skill in the art would have been motivated to employ IBM_NB9203470 in Morris et al. in order to obtain a method and apparatus for time-linked queue management for data traffic with a plurality classes and to take advantage of access based on access throughput-fairness control with a class-dependent threshold guarantees tight access-delay bounds for all priorities in claim 22.

The suggestion/motivation to do so would have been to control access based on access throughput-fairness with a class-dependent threshold guarantees tight access-delay bounds for all priorities, as suggested by IBM_NB9203470 disclosure text. At the time the invention was made, therefore, it would have been obvious to one of ordinary

skill in the art to which the invention pertains to combine IBM_NB9203470 with the Morris et al. to obtain the inventions specified in claim 22.

Regarding claims 23 and 25, IBM_NB9203470 further teaches that with a user class with greater collective data loss having priority over a user class with lesser collective data loss (use a throughput-fairness threshold to reserve more for a lower throughput connection).

A person of ordinary skill in the art would have been motivated to employ IBM_NB9203470 in Morris et al. in order to obtain a method and apparatus for time-linked queue management for data traffic with a plurality classes and to take advantage of using a throughput-fairness threshold to reserve more for a lower throughput connection in claims 23 and 25.

The suggestion/motivation to do so would have been to use a throughput-fairness threshold to reserve more for a lower throughput connection, as suggested by IBM_NB9203470 disclosure text. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine IBM_NB9203470 with the Morris et al. to obtain the inventions specified in claims 23 and 25.

Regarding claim 24, as discussed above, this claim has limitation that is similar to those of claims 23 and Morris et al. further teach he user classes are prioritized based on collective network access usage for a particular time of day (see Col. 7, lines 38-46), thus it is rejected with the same rationale applied against claim 23 above.

Regarding claims 29, 34, 46 and 51, IBM_NB9203470 further teaches that the CSLAs (policies) specify respective minimum levels of collective network access for user and classes (for low access-delay bounds), and said step of prioritizing includes comparing said monitored network access usages for such classes with the specified respective minimum levels of collective network access, and awarding priority to a class when said respective monitored network access usage for such class falls below the class' specified respective minimum level of collective network access (use a throughput-fairness threshold to reserve more for a lower throughput for low access-delay bounds).

A person of ordinary skill in the art would have been motivated to employ IBM_NB9203470 in Morris et al. in order to obtain a method and apparatus for time-linked queue management for data traffic with a plurality classes and to take advantage of using a throughput-fairness threshold to reserve more for a lower throughput for low access-delay bounds in claims 29, 34 46 and 51.

The suggestion/motivation to do so would have been to use a throughput-fairness threshold to reserve more for a lower throughput for low access-delay bounds, as suggested by IBM_NB9203470 disclosure text. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine IBM_NB9203470 with the Morris et al. to obtain the inventions specified in claims 29, 34 46 and 51.

Regarding claims 31 and 48, IBM_NB9203470 further teaches that the CSLAs (policies) specify respective minimum levels of collective network access up to a

maximum burstable levels with target probability for users and classes, and said step of prioritizing includes comparing said monitored network access usage for each such class both with the respective minimum levels of collective network access and with the respective maximum burstable levels of collective network access, and comparing the instances the respective maximum levels of collective network access were obtained for each such class out of all instances the respective maximum levels of collective network access could have been utilized (threshold determination takes into account on different classes and the maximum number of should remain below a specified value).

A person of ordinary skill in the art would have been motivated to employ IBM_NB9203470 in Morris et al. in order to obtain a method and apparatus for time-linked queue management for data traffic with a plurality classes and to take advantage of that threshold determination takes into account on different classes and the maximum number of should remain below a specified value in claims 31 and 48.

The suggestion/motivation to do so would have been to maintain that threshold determination takes into account on different classes and the maximum number of should remain below a specified value, as suggested by IBM_NB9203470 disclosure text. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine IBM_NB9203470 with the Morris et al. to obtain the inventions specified in claims 31 and 48.

Allowable Subject Matter

7. Claims 35-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

Reason for indicating Allowable Subject Matter

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art along or in combination fails to teach or make obvious the following limitations:

"the step of forecasting collective network access usage by each user class during a future time interval based on said step of monitoring network access usage by each user" as recited in the *dependent claim 35.*

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

rkc

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